Journal of Research in Medical and Dental Science
2021, Volume 9, Issue 4, Page No: 178-185

Available Online at: www.jrmds.in
eISSN No. 2347-2367: pISSN No. 2347-2545

Non-Standard Sports Equipment as an Effective Means of Stimulating Motor Activity of Preschoolers

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ABSTRACT

The article raises the issue of finding ways to preserve and strengthen the physical health of preschool children, increasing the resistance of the protective forces of the child's body, improving the motor regime of preschool education and identifying conditions that ensure its activation. Theoretical and methodical bases of activation of motor activity of children of preschool age in the conditions of institution of preschool education by means of the non-standard physical training equipment are generalized; features and parameters of motor activity of children of senior preschool age are covered. The offered article contains the analysis of results of experimental research of stimulation of motor activity of preschool children by means of the non-standard sports equipment. It is established that to diversify work on physical education in preschool institutions it is possible at the expense of use by teachers of the non-standard physical culture equipment, which contributes to the development of physical and moral qualities, improving the functioning of organs and systems of the body, strengthening muscles, and most importantly contributes to maintaining and improving the health of preschool children. The effectiveness of the influence of such types of non-standard sports equipment on the increase of motor activity of older preschool children was proven. The examples of such equipment are: equipment for training children in crawling, climbing, stepping and jumping over barriers, to develop dexterity, accuracy, flexibility, balance, coordination of movements and spatial perception; arm muscle strengthening equipment; for the development of sensory, fine motor skills; equipment for prevention and correction of flat feet; simulators for respiratory gymnastics, etc.

Key words: Physical activity, Non-standard sports equipment, Preschool children, Preschool education institutions, Adaptive capabilities of the body, Healthy lifestyle

HOW TO CITE THIS ARTICLE: Olena Hnizdilova, Oksana Vilkhova, Liliya Zimakova, Anzhela Pasichnichenko, Nataliya Kovalevska, Non-Standard Sports Equipment as an Effective Means of Stimulating Motor Activity of Preschoolers, J Res Med Dent Sci, 2021, 9 (4):178-185.

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Received: 12/03/2021

Accepted: 02/04/2021

INTRODUCTION

In the context of social and economic changes taking place in society, the problem of forming, maintaining, strengthening and restoring the health of the younger generation is becoming a priority. It is due to persistent trends of deteriorating health of the younger generation, increasing the prevalence of congenital pathology, declining human development index and level of physical fitness. These negative phenomena are largely associated with insufficient motor activity of children.

Today, the strategic goal of the preschool is to take care of children's health, after all, a healthy baby is more receptive to educational influences, quickly acquires the necessary skills and abilities, better adapts to changes in the environment. In recent years has significantly increased the number of children with mental health disorders, posture pathology, musculoskeletal disorders, mental and emotional retardation, which creates the preconditions for reducing their motor activity. One of the main tasks of the preschool institution is to create favorable conditions for

the full physical development of the child's body and systematic hardening. Successful solution of health, educational and upbringing goals is facilitated by the integrated use of traditional (mandatory for use in the educational process) and non-traditional forms of work on physical education of children [1]. The effectiveness of maintaining and strengthening the health of preschool children is ensured by conducting physical culture and health activities using a variety of equipment and inventory.

After analyzing the work of teachers on the formation of motor activity, it was proved that the development and health of preschool children depends on the optimal level of motor activity, as its insufficiency or redundancy promotes a delay of growth and development, and also reduces working and adaptive possibilities of an organism. Numerical studies of scientists (Boginich et al. [1], Boyko et al. [2], Wilchkovsky et al. [3], Levshunova et al. [4], Oliynyk et al. [5], Shurubenko [6], etc.) established the indisputable influence of movements on the child's health, because they are a biological need of the child's body from birth and a natural need for its development. The importance of motor activity is also emphasized in the studies of a cohort of teachers and psychologists: Hnizdilova et al. [7], Gorozhankina et al. [8], Dolbysheva et al. [9], Dutchak et al. [10], Zamrozevych-Shadrina et al. [11], Zomka et al. [12], Pasichnyk et al. [13], and others. The issue of optimizing the mode of motor activity of children in preschool educational institutions is thoroughly covered in the works of Wilchkovsky et al. [3]. General provisions on the importance of motor activity in the process of physical education of preschool children are considered in the works of Kurok et al. [14], Pakhalchuk et al. [15], Runova et al. [16] and others.

We see a powerful potential for optimizing physical activity in the use of non-standard sports equipment, which will provide the effect of novelty through the introduction of new elements or an interesting combination of existing equipment, updating of combinations and possibilities of providing variability in a combination of standard and non-standard equipment.

MATERIALS AND METHODS

The aim of the study is to theoretically substantiate and practically prove the effectiveness of the use of non-standard sports equipment as a means for stimulation of motor activity of older preschoolers in preschool institutions.

In order to experimentally test the effectiveness of non-standard sports equipment as a means of stimulating motor activity of preschool children, we conducted research on the basis of a preschool institution № 5 «Berry» (Poltava). The study involved children of older groups: № 1 «Cheburashka» (20 children) and № 2 «Buratino» (20 children), a total of 40 people, 4 teachers, physical education instructor, music director, nurse and parents. The pedagogical experiment was conducted for 6 months. In accordance with this goal, we used the following research methods: analysis, comparison and generalization of data from psychological, pedagogical and methodological literature; observation of motor activity of children; questionnaire of parents (questionnaire «Level of motor activity of your child», developed by K. V. Levshunova); game testing (in order to assess the volitional efforts in the use of non-standard sports equipment); steps measurement; conversations with educators, parents and children; simulation of situations with the use of non-standard sports equipment; games, exercises and creative tasks of physical culture and health-improving content with non-standard physical culture equipment; «chain» speaking.

RESULTS AND DISCUSSION

The problem of the younger generation's hypodynamic state is relevant for many countries around the world. The «Manifesto on Sport», endorsed by UNESCO and the governments of a number of countries, emphasizes the need to adhere to reasonable limits on intellectual education and to determine the appropriate place for physical education, on which it is necessary to allocate from 1/3 to 1/5 of the general educational time (depending on age of children). Otherwise, the harmony of their development is disturbed [2,17-19].

The importance of physical activity for preschool children cannot be overestimated. Based on the analysis of the scientific literature, it can be stated that the definition of «motor activity» has quite a variability and is multifaceted. Summarizing the different approaches to defining the essence of the studied phenomenon,

we understand motor activity as a set of motor actions, performed by a person in the process of everyday life, as a measure of mobility, which is manifested in various activities and ensures the development of physical, social, cognitive achievements and the integrity of mental development of the individual. Children's motor activity can be divided into specially organized (exercise under the guidance of an educator during classes, morning gymnastics, moving games) and spontaneous (independent games, exercise, children's movements in free time, etc.). The dominant sign of motor activity is the number of steps that the child takes during the day [16,20,21].

Usage during classes and in everyday life of non-standard sports equipment contributes to improving the effectiveness of physical culture and health work with children, as well as increasing their interest in physical culture and sports [4,22,23].

In each group of kindergarten, except for a game zone, there is an equipped sports corner. As a rule, sports corners have a standard filling consisting from ready industrial products: Swedish walls, fitness balls and balls of various sizes, rubber jumpers, gymnastic mats and soft mats, hoops, skipping ropes, skittles, small dumbbells, trampolines, basketball hoops or baskets, sets for sports games, etc. In addition to the described items, each group, as a rule, has non-standard sports equipment, such as:

Equipment for training children in crawling, climbing, stepping and jumping over barriers, for development of dexterity and flexibility: «Barriers», «Thread», «Merry sticks», «Magic escalator» etc.

Equipment for the development of sensory and fine motor skills: «Multicolored stones», «Multicolored flags, handkerchiefs, ribbons», «Wand-winders», «Laces» and bags with cereals, sewn from different types of fabrics, children's expanders;

- ✓ Equipment for prevention and correction of flat feet: «Funny Rays», «Inhabitants of the Underwater World», «Health Paths», which have a soft fabric base with buttons sewn on it, components of the constructor and other elements for foot massage;
- ✓ Simulators for breathing exercises, for example, ribbons with paper figures strung on the ends, «Soccer field», «Blizzard».
- ✓ for the development of dexterity, balance, coordination of movements and spatial perception following equipment is used: «Twister» or it's replacement with homemade stencils with the image of brushes and feet, «Turtle», «Octopus», rope ladder «Rainbow»;
- ✓ Games for the development of accuracy: «Ring tossing game», «Darts», «Hit the target»;
- ✓ Equipment for strengthening arm muscles: «Dumbbells», «Exercise tape», «Funny rays»;
- ✓ Masks of fairy tale characters and cartoons used for action games;
- ✓ Visual aids in the form of colorful albums that tell about different sports. They are used for imitation, because often children, especially boys, in their games imagine themselves as famous athletes [13].

In order to study the state of physical development of older preschool children in the experimental (№ 1) and control (№ 2) groups, we developed an experimental program and methods for detecting the level of motor activity (MA) of older preschool children.

During the statement stage in order to identify the levels of MA of older preschoolers, we determined the criteria and indicators of MA. Let's characterize the criteria of MA with the use of non-standard sports equipment:

- ✓ Self-attitude to motor activity with the use of non-standard sports equipment is the presence of desire, need, interest in MA with the use of non-standard sports equipment; reaction to one's own achievements in the motor sphere; manifestation of volitional efforts in motor activity and endurance according to age and physical activity.
- ✓ Motor awareness in the use of non-standard sports equipment is an awareness of the role of exercise in the development and strengthening of the body; knowledge and conscious observance of rules in the use of non-standard sports equipment.
- ✓ Motor activity with the use of non-standard sports equipment is the presence of plastic, expressive and aesthetic movements when

using non-standard sports equipment; ability to independently apply motor experience in working with non-standard sports equipment both in specially organized classes and in independent motor activity; assessment and regulation of the possibilities of non-standard sports equipment in the development of one's own body; mastering the basic movements with the help of non-standard sports equipment (walking, running, jumping, climbing).

- ✓ The criterion of «self-attitude» to MA with the use of non-standard sports equipment, in our opinion, is determined by such indicators, as an emotional setting and volitional endurance and is characterized by following levels:
- ✓ **High level:** the senior preschooler has a desire, need and interest in MA with the use of non-standard sports equipment; responds positively to their own achievements in the motor sphere; shows strong-willed efforts in motor activity and high endurance to physical activity by means of the non-standard sports equipment;
- ✓ **Intermediate level:** preschooler partially expresses desire, need and interest in MA with the use of non-standard sports equipment; generally responds positively to their own achievements in the motor sphere, and otherwise tries to restrain negative emotions; at a sufficient level shows strong-willed efforts in motor activity and shows sufficient endurance in work with the non-standard sports equipment;
- ✓ **Low level:** The older preschool child has no desire or interest in MA; reacts negatively to its involvement in motor activity; does not show strong-willed efforts in work with the non-standard sports equipment.
- ✓ The criterion of «motor awareness» in the use of non-standard sports equipment, in our opinion, is determined by such indicators: motor self-attitude and motor literacy and has following levels:
- ✓ **High level:** the senior preschooler is clearly aware of the role of exercise in the development and strengthening of his own body; has his favorite equipment among non-standard sports equipment; can justify his choice for his own motor activity; understands the consequences of his careless handling of non-standard sports equipment for others; knows and consciously follows the rules of using non-standard sports equipment to perform basic movements.
- ✓ **Intermediate level:** the child is generally aware of the role of exercise in the development and strengthening of his own body; has a positive attitude to the use of non-standard sports equipment; understands the consequences of his careless handling of non-standard sports equipment for others; partially knows the rules of using non-standard sports equipment to perform certain movements.
- ✓ **Low level:** preschooler does not understand the role of exercise with the use of non-standard sports equipment in the development and strengthening of their own body; does not know the rules of using non-standard sports equipment in physical activity.
- ✓ The criterion of «motor activity» in the use of non-standard sports equipment is determined by such indicators: motor skills, motor interpretation and is characterized by the following levels:
- ✓ **High level:** the child of the senior preschool age is able to move plastically, expressively and aesthetically during physical activity with use of the non-standard physical training equipment; independently uses motor experience in working with non-standard sports equipment; is able to assess and regulate the capabilities of non-standard sports equipment in the development of their own body; masters the basic movements (walking, running, jumping, climbing) with the help of non-standard sports equipment; creatively uses non-standard sports equipment during specially organized and spontaneous activities.
- ✓ **Intermediate level**: preschooler at a sufficient level has the basic movements (walking, running, jumping, climbing) with the help of non-standard sports equipment; has plastic expressive movements with use of the non-standard sports equipment in general; understands the benefits of

using certain types of non-standard sports equipment in the development of your own body; at the reproductive level uses non-standard sports equipment in spontaneous activities.

- ✓ **Low level:** The child at a low level has the basic movements (walking, running, jumping, climbing); not capable of independent use of non-standard sports equipment.

In order to diagnose and monitor the current state of the studied phenomenon by the criterion of self-attitude to MA using non-standard sports equipment, we used the observation of MA children of older preschool age with non-standard sports equipment; questionnaire for parents (questionnaire «Level of motor activity of your child», developed by K. V. Levshunova); game testing (in order to assess the volitional efforts in the use of non-standard sports equipment); measurement of steps taken in one day; conversations with educators, parents and children.

The study on the criterion of «motor awareness» in the use of non-standard sports equipment was conducted through interviews with children (on the importance of physical activity and the value of health; types of non-standard sports equipment) and modeling of situations with the use of non-standard sports equipment; observation.

The following methods were selected to study the levels of MA formation according to the criterion of «motor activity» with the use of non-standard sports equipment: games and exercises with non-standard sports equipment; creative tasks of physical culture and health-improving content with non-standard physical culture equipment; observation; measurement of steps; «chain» statement. The generalized level of motor activity of senior preschoolers is presented in Table 1.

We did not find a significant difference between the levels of motor activity of older preschool children in the experimental and control groups: the vast majority of subjects had a medium level, 21.7 % had high level, a significant part, namely 28.3 % (experimental group) and 31.7 % (control group) of preschoolers had a low level of motor activity (Figure 1).

The study provides grounds for concluding that the level of motor activity of older preschool children is insufficient. This requires changes in the process of organizing physical culture and health-improving activities of children in preschool education and development of special pedagogical technology for the use of non-standard sports equipment.

In connection with the above facts, there is a need to improve the motor regime of older preschool children. For this purpose, we offered the pedagogical technology of optimization of MA for children of senior preschool age with use of the non-standard sports equipment.

At the preparatory stage of technology implementation, we have developed a calendar plan of physical culture and health work with older preschool children, where we envisioned the possibility of using non-standard sports equipment in various forms of physical activity; prepared summaries of physical education classes, speech communication, acquaintance with nature, logical and mathematical development and others. We selected and manufactured non-standard sports equipment.

At the main stage of technology implementation, we carried out diagnostics of motor activity of senior preschoolers with the use of non-standard sports equipment. During the formative stage of the experiment, a series of classes and other sports and health activities were conducted using non-standard sports equipment. After that, we

Table 1: Levels of motor activity of older preschool children at the stage of ascertaining experiment.

	Levels		
	High	**Medium**	**Low**
Criterion		Persons %	
self-attitude to motor activity with the use of	8 persons	19 persons	13 persons
non-standard sports equipment	20 %	47.5 %	32.5 %
motor awareness in the use of non-standard	9 persons	20 persons	11 persons
sports equipment	22.5 %	50 %	27.5 %
motor activity with the use of non-standard	9 persons	19 persons	12 persons
sports equipment	22.5 %	47.5 %	30 %
Generalized indicator	21.7 %	48.3 %	30 %

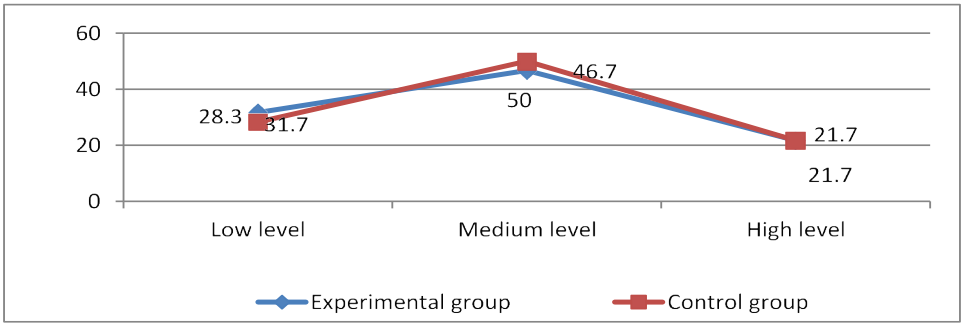

Figure 1: Levels of motor activity in children of the experimental and control groups.

analyzed the success of classes and made a re-diagnosis of motor activity of older preschoolers.

At the final stage we created a center of non-standard sports equipment in the group room and formulated guidelines for the selection of non-standard sports equipment for certain types of physical activity of senior preschoolers in preschool education.

At the main stage of realization of pedagogical technology during carrying out of physical culture entertainments with children of senior preschool age on such subjects as «Great Sports Journey», «Sportsmen's Tournament», «Roads of Cossack Victories», «Galloping Across Europe», «Great Autumn Health», «Great Winter Health», «Great Spring Health» we used such non-standard stock: «Barriers», «Funny sticks», «Turtle», «Cobweb», «Wand-winders», «Dumbbells», «Sultans», etc.

The following examples of non-standard sports equipment were used in physical education classes «We grow strong, we love fairy tales», «To grow healthy, you need to take care of your health» and others: «Funny rays», rope ladder «Rainbow», «Colored parachute», «Funny stilts», «Bear», «Dragon», «Intellectual target», «Tunnel», «Ski tandem», etc.

During the classes on logical-mathematical and speech development, acquaintance of children with the environment, a number of sports minutes were held with the use of non-standard sports equipment («Cheerful massager», «New Year's snowball», «Multicolored ribbons», «Sports cubes», «Bilboquet», etc.).

Non-standard sports equipment was used as widely as possible during classes, morning gymnastics, walks, sports holidays and entertainment. Although it is inferior to the simulators, it is still more affordable. In the gym or on the street, it provided a sufficient level of physical activity, at the same time allowed to adjust the technique of performing exercises, to change the nature of the child's efforts, taking into account its capabilities and the body's response to the level of physical activity. Children could perform a holistic movement both independently and with the help of a physical education instructor or educator.

The «Health Paths» developed by us were used daily with older preschool children during wake-up exercises and not systematically during morning and corrective exercises.

All samples of non-standard sports equipment made by us were in specially created cells in the age group. During independent play activities, teachers encouraged children to creatively use the whole arsenal of non-standard sports equipment during moving games and exercises on a walk.

Individual work with children who lag behind in certain types of movements, educators conducted during the evening walk. The content of such work included various motor tasks aimed at the development and improvement of insufficiently mastered motor skills and physical abilities of preschool children.

The molding stage ended with a control examination. For this purpose, diagnostic methods of the observational experiment were used. On the basis of the received data it is possible to draw a conclusion about positive changes after introduction in work of establishment of preschool education of pedagogical technology on formation of motor activity of children of senior preschool age by means of the non-standard physical training equipment. In particular, the number of preschoolers in the experimental group with high and medium levels of MA (26.7 % and 55 %, respectively)

increased. Also, the number of children with low levels decreased by 13.4 % (Figure 2).

The examination of MA indicators of senior preschoolers allowed us to reveal increase in number of children from experimental group with high and medium levels on each investigated criterion. Thus, according to the first criterion, namely «self-attitude to physical activity with the use of non-standard sports equipment», there was a decrease in the number of children with low levels from 35 % to 20 %, with simultaneous increase in the number with a high level from 20 % to 25 % and the medium level from 45 % to 55 %.

The increase in the number of children with high and medium levels was observed also by the second criterion, namely «motor awareness in the use of non-standard sports equipment». Before the formative experiment, there were 25 % with a high level and 50 % with a medium level, after the experiment there were 30 % and 55 %, respectively.

According to the third criterion, namely «motor activity in the use of non-standard sports equipment», the following changes were recorded: the number of children with a high level increased from 20 % to 25 %, the medium level raised from 45 % to 55 %; in turn, the number of preschoolers with low levels of MA decreased from 35 % to 20 %. There are also differences in the results of the experimental and control groups after the molding experiment (Figure 3).

CONCLUSIONS

The results of the study confirm that the widespread use of non-standard sports equipment during physical education classes, on walks and in independent game activity on condition of use of the technique developed by us and an optimum dosage of physical activities promotes strengthening of the muscular device of children. Also, the experimental data obtained during the examination of the musculoskeletal system, indicate its intensive development in children from the experimental group.

Thus, the proposed pedagogical technology of stimulating organized and independent motor activity by means of non-standard sports equipment contributed to the improvement of indicators of psychophysical condition of children and motor activity of the experimental group. Non-standard sports equipment can be successfully used in preschool education.

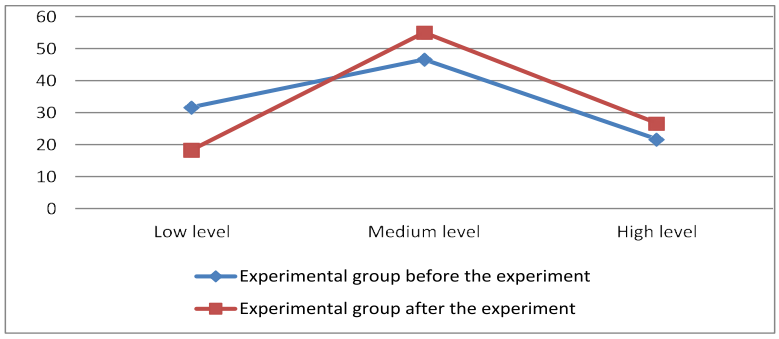

Figure 2: The level of motor activity of senior preschoolers in the experimental group before and after the formative experiment.

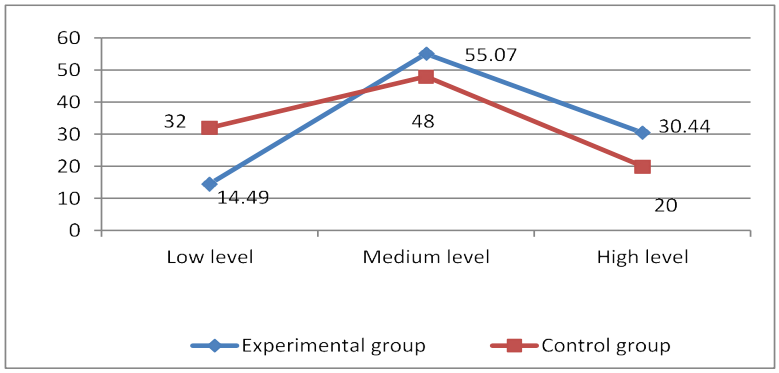

Figure 3: Comparative growth graph of the average MA level of older children in the experimental and control groups after the experiment.

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